

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl.No.: 09/918,377  
Appellant: Ratcliff et al  
Filed: 07/30/2001  
TC/AU: 2644  
Examiner: Tran

Confirmation No.: 9994

Docket: TI-33115  
Cust.No.: 23494

SUBSTITUTE APPEAL BRIEF

Commissioner for Patents  
P.O.Box 1450  
Alexandria VA 22313-1450

Sir:

In response to the Notification of Non-Compliant Appeal Brief mailed 09/27/2006, appellant hereby submits the attached sheets which contain the Rule 41.37 items of appellant's substitute Appeal Brief. The fee for filing a brief in support of the appeal has previously been paid. The Director is hereby authorized to charge any other necessary fees to the deposit account of Texas Instruments Incorporated, account No. 20-0668.

Respectfully submitted,

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Rule 41.37(c)(1)(i) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 41.37(c)(1)(ii) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 41.37(c)(1)(iii) Status of claims

Claims 1-19 are pending in the application with all claims finally rejected. This appeal involves the finally rejected claims 1-19.

Rule 41.37(c)(1)(iv) Status of amendments

There is no amendment to the claims after final rejection.

Rule 41.37(c)(1)(v) Summary of claimed subject matter

The independent claims on appeal consist of machine claim 1, device claim 7, device claim 13, and method claim 18.

The subject matter of claim 1 is an audio processing machine with a plurality of audio inputs (application page 6, line 24; FIG.1 16-21); a plurality of audio outputs (application page 6, line 24-25; FIG.1 22-25, 27, and 29); a plurality of audio filters (application page 7, line 12; FIG.3 40); a plurality of audio processing channels (application page 7, lines 6-7; FIG.2 32); and a plurality of multiply switches (application page 6, line 26; FIG.1 11,13) configured to selectively mix the plurality of audio inputs and the plurality of audio outputs such that audio signals passing through the plurality of audio inputs are processed via a plurality of audio filters selected from the plurality of audio filters and a plurality of audio processing channels selected from the plurality of audio processing channels to generate at least one desired audio output signal (application page 2, lines 24-28; page 6, lines 23-28; FIG.1 12,14).

The subject matter of claim 7 is an audio processing device with means for receiving a plurality of audio input signals (application page 6, line 24; FIG.1 16-21), means for generating a plurality of audio output signals (application page

6, lines 3-28; FIG.1); means for filtering the plurality of audio input signals to generate a plurality of filtered audio signals (application page 7, line 12; FIG.3 40), means for processing the plurality of filtered audio signals to generate a plurality of processed audio signals (application page 7, lines 5-10; FIG.2 30,32); and a plurality of multiply switches (application page 6, line 26; FIG.1 13) configured to selectively mix a plurality of audio input signals selected from the plurality of audio input signals, a plurality of filtered audio signals selected from the plurality of filtered audio signals and a plurality of processed audio signals selected from the plurality of processed audio signals to generate at least one desired audio output signal (application page 2, lines 24-28).

The subject matter of claim 13 is an audio processing device having a plurality of multiply switches (application page 6, lines 25-26; FIG.1 11,13) operational to selectively mix a plurality of audio input signals, a plurality of filtered audio signals generated therefrom the plurality of audio input signals and a plurality of processed audio signals generated therefrom the plurality of filtered audio signals to generate at least one desired audio output signal (application page 6, lines 23-28).

The subject matter of claim 18 is a method of processing an audio signal, the method comprising the steps of configuring a first plurality of multiply switches (application page 6, lines ?; FIG.1 11), a second plurality of multiply switches (application page ?, lines ?; FIG.1 26) and a third plurality of multiply switches (application page 6, lines ?; FIG.1 13); mixing a plurality of audio input signals via the first plurality of multiply switches to generate a plurality of mixed audio signals (application page 6, lines 24-25, lines 27-28; FIG.1 11); filtering the plurality of mixed audio signals to generate a first plurality of filtered audio signals (application page 7, lines 11-12; FIG.3 40); mixing the first plurality of filtered audio signals via the second plurality of multiply switches to generate to generate a second plurality of filtered audio signals (application page 7, lines 12-14; FIG.1 26); processing the second plurality of filtered audio signals to generate a plurality of processed audio signals (application page 7, line 25; FIG.3 42,44); and mixing the plurality of processed audio signals via the third plurality of

multiply switches (application page 6, lines 26-28; FIG.1 13) to generate at least one desired audio output signal.

Rule 41.37(c)(1)(vi) Grounds of rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal are:

(1) Claims 1, 6-7, 12-13, and 18 were rejected under 35 USC § 103 as unpatentable over Cowieson.

(2) Claims 2-3, 8-9, and 14-15 were rejected under 35 USC § 103 as unpatentable over Cowieson in view of Matheny.

(3) Claims 4, 10, and 16 were rejected under 35 USC § 103 as unpatentable over Cowieson in view of Matheny and Tang.

(4) Claims 1-19 were rejected under 35 USC § 103 as unpatentable over Jacobs in view of Rossmere.

Rule 41.37(c)(1)(vii) Arguments

(1) Claims 1, 6-7, 12-13, and 18 were rejected as unpatentable over Cowieson.

Claims 1, 6: the Examiner cited col. 4, ln. 54-57 for the claim 1 "processing channels", and cited the summers for the claim 1 multiply switches.

Appellants reply that the "channels" of col. 4, ln. 54-57 refers to the left and right stereo signals, not to hardware as required by claim 1. Further, the summers of Cowieson do not allow mixing of (i) input signals, (ii) filtered signals, and (iii) channel processed signals as required by claim 1; as Cowieson Figs.1A, 2, and 4 show there are summers between inputs and filters and between filters and outputs, but there are no summers between processing channels and outputs.

Claims 7, 12-13, and 18: the Examiner noted that these claims have limitations similar to those of claim 1.

Appellant agrees and relies upon an argument similar to the foregoing argument with regard to claim 1.

(2) Claims 2-3, 8-9, and 14-15 were rejected as unpatentable over Cowieson in view of Matheny.

Appellant relies upon the patentability of parent claims 1, 7, and 13.

(3) Claims 4, 10, and 16 were rejected as unpatentable over Cowieson in view of Matheny and Tang.

Appellant relies upon the patentability of parent claims 1, 7, and 13.

(4) Claims 1-19 were rejected as unpatentable over Jacobs in view of Rossmere.

Claims 1-6: the Examiner cited Jacobs Fig.4, items 64-65 and col. 11, In. 36-65 for the claim 1 "processing channels", and Rossmere Fig.3B, items 305, 310 for the claim 1 plurality of multiply switches.

Appellant replies that the cited "channels" of Jacobs are signals and not hardware as required by claim 1; see Jacobs col. 11, In. 57-58. Further, the outputs of the cited filters (Jacobs Fig.4, items 11 at right edge) are directly connected to the outputs and cannot be mixed as required by the hardware of claim 1.

Claims 7-19: the Examiner noted that the independent claims have limitations similar to those of claim 1.

Appellant agrees and relies upon an argument similar to the foregoing argument with regard to claim 1.

Consequently, the references do not suggest any of the independent claims (claims 1, 7, 13, and 18), and all of the claims are patentable over the references.

Rule 41.37(c)(1)(viii) Claims appendix

1. An audio processing machine comprising:
  - a plurality of audio inputs;
  - a plurality of audio outputs;
  - a plurality of audio filters;
  - a plurality of audio processing channels; and
  - a plurality of multiply switches configured to selectively mix the plurality of audio inputs and the plurality of audio outputs such that audio signals passing through the plurality of audio inputs are processed via a plurality of audio filters selected from the plurality of audio filters and a plurality of audio processing channels selected from the plurality of audio processing channels to generate at least one desired audio output signal.
2. The audio processing device according to claim 1 wherein the plurality of multiply switches are comprised of single-cycle multiply switches.
3. The audio processing device according to claim 1 wherein the plurality of multiply switches are comprised of programmable multiply switches.
4. The audio processing device according to claim 3 wherein the programmable multiply switches are reconfigurable on-the-fly.
5. The audio processing device according to claim 1 wherein the multiply switches are further configured to generate a first logic signal to open a conductive path, a second logic signal to close the conductive path, and a third logic signal to open the conductive path while inverting a signal phase associated with an audio signal passing there through.
6. The audio processing device according to claim 1 wherein the plurality of audio filters comprise biquad filters.

7. An audio processing device comprising:
  - means for receiving a plurality of audio input signals;
  - means for generating a plurality of audio output signals;
  - means for filtering the plurality of audio input signals to generate a plurality of filtered audio signals;
  - means for processing the plurality of filtered audio signals to generate a plurality of processed audio signals; and
  - a plurality of multiply switches configured to selectively mix a plurality of audio input signals selected from the plurality of audio input signals, a plurality of filtered audio signals selected from the plurality of filtered audio signals and a plurality of processed audio signals selected from the plurality of processed audio signals to generate at least one desired audio output signal.
8. The audio processing device according to claim 7 wherein the plurality of multiply switches are comprised of single-cycle multiply switches.
9. The audio processing device according to claim 7 wherein the plurality of multiply switches are comprised of programmable multiply switches.
10. The audio processing device according to claim 9 wherein the programmable multiply switches are reconfigurable on-the-fly.
11. The audio processing device according to claim 7 wherein the multiply switches are further configured to generate a first logic signal to open a conductive path, a second logic signal to close the conductive path, and a third logic signal to open the conductive path while inverting a signal phase associated with an audio signal passing there through.
12. The audio processing device according to claim 7 wherein the filtering means comprises a plurality of biquad filters.

13. An audio processing device having a plurality of multiply switches operational to selectively mix a plurality of audio input signals, a plurality of filtered audio signals generated therefrom the plurality of audio input signals and a plurality of processed audio signals generated therefrom the plurality of filtered audio signals to generate at least one desired audio output signal.
14. The audio processing device according to claim 13 wherein the plurality of multiply switches comprise single-cycle multiply switches.
15. The audio processing device according to claim 13 wherein the plurality of multiply switches comprise programmable multiply switches.
16. The audio processing device according to claim 15 wherein the programmable multiply switches are reconfigurable on-the-fly.
17. The audio processing device according to claim 13 wherein the multiply switches are configured to generate a first logic signal to open a conductive path, a second logic signal to close the conductive path, and a third logic signal to open the conductive path while inverting a signal phase associated with an audio signal passing there through.
18. A method of processing an audio signal, the method comprising the steps of:
- a. configuring a first plurality of multiply switches, a second plurality of multiply switches and a third plurality of multiply switches;
  - b. mixing a plurality of audio input signals via the first plurality of multiply switches to generate a plurality of mixed audio signals;
  - c. filtering the plurality of mixed audio signals to generate a first plurality of filtered audio signals;



- d. mixing the first plurality of filtered audio signals via the second plurality of multiply switches to generate a second plurality of filtered audio signals;
- e. processing the second plurality of filtered audio signals to generate a plurality of processed audio signals; and
- f. mixing the plurality of processed audio signals via the third plurality of multiply switches to generate at least one desired audio output signal.

19. The method according to claim 18 further comprising the step of reconfiguring on-the-fly, at least one multiply switch selected from the first, second and third plurality of multiply switches and then repeating steps b-f.

Rule 41.37(c)(1)(ix) Evidence appendix

none

Rule 41.37(c)(1)(x) Related proceedings appendix

none